MLM Builder: An Integrated Suite for Development and Maintenance of Arden Syntax Medical Logic Modules

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ABSTRACT

The Arden Syntax specification for sharable computerized medical knowledge bases has not been widely utilized in the medical informatics community because of a lack of tools for developing Arden Syntax knowledge bases (Medical Logic Modules). The MLM Builder is a Microsoft Windows-hosted CASE (Computer Aided Software Engineering) tool designed to aid in the development and maintenance of Arden Syntax Medical Logic Modules (MLMs). The MLM Builder consists of the MLM Writer (an MLM generation tool), OSCAR (an anagram of Object-oriented ARden Syntax Compiler), a test database, and the MLManager (an MLM management information system). Working together, these components form a self-contained, unified development environment for the creation, testing, and maintenance of Arden Syntax Medical Logic Modules.

Until recently, knowledge engineers wanting to develop Arden Syntax Medical Logic Modules (MLMs) were forced to rely on generic text editors, or customized versions of commercial programmers' editors. The knowledge engineers were forced to rely on only their own memories and paper documentation while developing MLMs.

Our system (the MLM Builder) is aimed at the knowledge engineer or advanced clinical user and places no limitations on the type of MLMs which may be created, but at the cost of increased complexity[1], unlike a similar system described by Columbia University, which was aimed a clinicians and sacrificed MLM complexity for ease of use.[2]

MLM Builder has been developed from my previous work[1] and conversations with the author of a publicly available syntax checker.[3] The MLM Builder integrates the functions of the MLM Writer, OSCAR (*an anagram of Object-oriented ARden Syntax Compiler*), and the MLManager (an MLM management information system).

The MLM Writer has been previously described[2] but has undergone a major rewrite to improve the program's efficiency and stability under 32-bit versions of Microsoft Windows products.

Like the rest of the MLM Builder, OSCAR has a GUI (Graphical User Interface) to interact with the compiling and syntax checking process. OSCAR can also be used as a "drag-and-drop" recipient to compiler files outside of the MLM Builder environment. OSCAR currently translates the MLM from an Arden Syntax representation to either C or Delphi (object Pascal) code which can then be compiled for different platforms.

The MLManager allows the KE to keep track of the MLM which he as developed or those for which he is responsible. It has some of the capabilities of commercial version control packages, but does not currently provide either interoperability or multi-user support.

MLM Builder's test database allows the MLMs to be tested against a real database. During construction the MLM Writer can insert either live or test database calls and these calls can be remapped by.MLM Writer once testing is completed.

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References

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